

EVALUATION OF DEER GUARDS FOR KEY DEER, BIG PINE KEY, FLORIDA

PROBLEM STATEMENT

The Florida Key deer (*Odocoileus virginianus clavium*) is the smallest subspecies of white-tailed deer. It is considered a unique subspecies based on its geographic isolation from white-tailed deer residing on the peninsula of mainland Florida. Habitat destruction and unregulated hunting were responsible for the Key deer population dropping to some 25-50 animals in the 1950's (Dickson 1955). A Key deer refuge was established in 1957. In addition, stringent law enforcement efforts to protect Key deer were reinforced by the listing of the deer as an endangered species in 1967 (Folk 1991). The animal's population rose to approximately 300 by 1970.

Nevertheless, despite the illegality of hunting Key deer and the rarity of natural predators, the Key deer continues to experience unnatural mortality within its limited range—most commonly highway mortality. High fencing of roadways, in conjunction with wildlife crossings, has been used to help reduce highway related deer deaths. Management of deer access into fenced roadways has been an unresolved issue, with no viable control available. Development of a structure (deer guard) that prevents Key deer access to fenced roadways while allowing vehicular traffic would be a valuable tool in reducing occurrences of deer/vehicle collisions. There are currently no effective deer guard designs available for use on white-tailed deer.

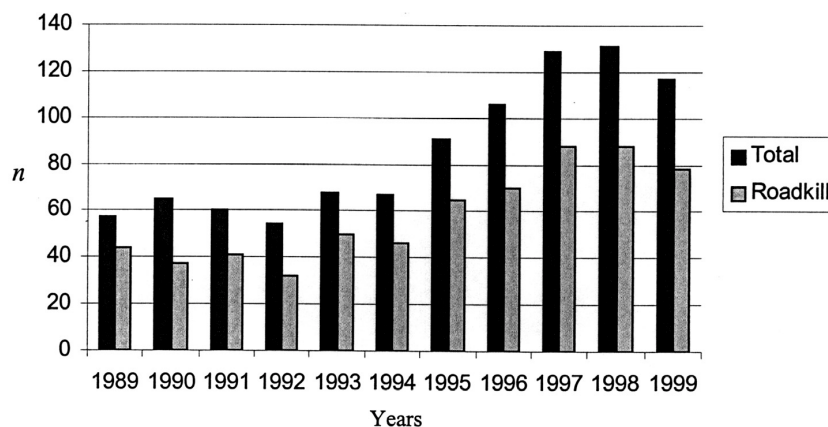


Fig. 1. Comparison of total mortality and road mortality (*n*) of Florida Key deer on Big Pine Key, Florida from 1989-1999.

OBJECTIVES

The purpose of this study was to design and test the effectiveness of deer guards for use on Florida Key deer. Development of deer guards is based on the need for prevention of deer accessing certain areas, such as roadways or other sites that pose a particular hazard while allowing public vehicular access. The goal of this study was to determine the best possible deer guard design for use in the final phase of the SR-5/US-1 Key Deer/Motorist Conflict Study (FDOT Project No.2505641).

FINDINGS AND CONCLUSIONS

Four prototypes were tested: (1) a 3.7 *m* ground level guard which was given limited testing because it proved inadequate to prevent smaller, more agile deer from jumping across it; (2) a 5.5 *m* guard installed at ground level, which the deer were able to cross by stepping between cross-members; (3) a 5.5 *m* raised (by 0.6 *m*) guard, which proved effective during no-incentive, food/water manipulation, and doe/fawn separation tests; and (4) a 5.5 *m* sloped guard which proved effective during the no-incentive testing, but was crossed by deer who jumped diagonally across it during the food/water incentive test. This last prototype was crossed when it was fitted with 2.4 *m* cattle side panels. When it was outfitted with full-length side panels, no deer crossed.

Thus, the 5.5 *m* guards (raised/sloped) were effective devices for preventing deer from crossing. Used in conjunction with high fences and wildlife crossings, deer guards could be a valuable device for reducing the highway mortality of Key deer on Big Pine Key, Florida. Based on research findings, it may be concluded that the installation of guards at access points along US-1 could reduce deer/vehicle collisions. Although the deer guard design is not perfect and may not prevent all deer from crossing, data indicates that it will be effective under normal circumstances and will reduce Key deer mortality.

In addition to the benefits from its intended design, deer guards, with slight modifications, can be valuable for reducing the highway mortality of other species of ungulates. Reed's (1974) deer guard design was ineffective at preventing mule deer from walking cross-members, although the similarly designed guard in this study was effective at preventing smaller hoofed, white-tailed deer from crossing. Overpopulation of white-tailed deer herds across the United States has been an emerging issue in recent years. Fencing, in conjunction with this deer guard design, could be useful for keeping deer out of residential areas, and thus reduce deer/human conflict. Game-resistant fencing has become a popular method of keeping wildlife in or out of private property, ranches, and hunting preserves. The deer guard designed and tested during this study could also be a valuable asset to an operation that has high traffic areas or that does not want to install traffic impeding gates. With a slight modification in cross-member spacing, this design should work for different sized animals (i.e. larger spaces for larger hooves). In addition, changes in guard dimensions such as length, width, slope angle, and/or height of guard could be incorporated in order to match physical and behavioral characteristics of many animals.

This research project was conducted by Nova Silvy, Ph.D, at Texas A & M University. For more information on the project, contact Catherine Owen at (305) 470-5399, catherine.owen@dot.state.fl.us